

Five Learning Strategies to Engage Struggling Students

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**“Without images,
thinking is impossible.”**

– Aristotle

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All students are entitled to a rigorous, relevant and successful educational experience. Traditionally the keystones for measuring academic success have been a student’s ability to read with fluency and be proficient in mathematics. For many students, however, achieving success in learning has been a daunting challenge, particularly for children with disabilities, and disengaged or struggling learners.

One third, or 33% of our fourth graders do not meet proficiency standards in reading.

– National Center for Educational Statistics:
LD Facts and Statistics, 2007

Research has shown again and again the high price society pays for not intervening and changing the downward trajectory of these children. (Haan Foundation for Children)

- 80% of students with learning challenges have reading disabilities.
- 60% of adolescents in treatment for substance abuse are learning disabled.

- 35% of students with learning disabilities drop out of high school.
- 50% of juvenile offenders have undetected learning disabilities.
- 25% of the young-adult population lacks the basic literacy skills required for a typical job.
- Approximately 50% of criminal offenders have learning disabilities.

(Haan Foundation for Children: LD Facts and Statistics)

Traditional methods of teaching reading and mathematics have been successful with most students in American schools. But a growing minority of children are unable to read or do math work at grade level. There is an urgent need to develop more effective methods for teaching students with learning challenges, as well as instilling in all students a lifetime love of learning.

This White Paper describes five visual learning strategies for engaging and motivating struggling students to achieve academic success.

Strategy 1

Recognize that there is not a single way for students to learn by providing a wide variety of visual, auditory and tactile learning materials.

Multiple Intelligences Theory (MI) contends that different people have different ways of thinking and processing. This theory (Gardner, 1983) defines eight discrete intelligences:

Verbal – linguistic
Logical – mathematical
Visual – spatial
Musical – rhythmic
Bodily – kinesthetic
Naturalist
Interpersonal
Intrapersonal

MI proposes that intelligence cannot be separated from the context in which it has arisen and is displayed. The task of educators is to ensure that instructional strategies are available to identify and take advantage of the unique intelligence of individual students.

The MI theory maintains that children with strong visual/spatial intelligence respond to visual stimulation: photos, picture drawing, mapping, colors, and turning a paper idea into a solid object. The MI theory is supported by current brain research, which has identified the left hemisphere as the center for processing tasks that are orderly, sequential and verbal-mathematical (West, 1997). The right hemisphere dominates visual-spatial and nonverbal cognition activities. A recent study found

that approximately 20–30% of American students were auditory learners; about 40% visual; while the remaining 30–40% are either tactile learners, or some combination of visual, auditory and tactile (Liu and Ginther 1999).



Traditionally schools have relied heavily on learning directed to the left hemisphere of the brain. Students whose thought processes are predominantly in the right hemisphere frequently encounter learning difficulties in school. For the greatest success in teaching all children to read, teaching styles and classroom materials should be designed to respond to different cognitive learning styles of students.

The Dual Coding Theory proposed by Paivio contends that equal weight should be given to non-verbal and verbal processing. In an experimental study (Sadoski, Goetz, Fritz 2002) participants were tested on their recall of instructional text. The experiments compared text with visual imagery and abstract verbal text. It was found that using the concreteness of visual imagery was the variable overwhelmingly related to positive comprehension and recall.

In the population of students with learning disabilities, the percentage of visual learners and right brain learners is much higher than the general population. For example, students

with ADD, autism, Aspergers, hearing impairments and Down syndrome are almost always visual learners. These students have an especially difficult time processing auditory information. The traditional phonetic approach to teaching reading, constructing words through sequencing sounds, is unlikely to be successful with students who are primarily visual learners.



“They (visual learners) need something to help them learn the way they learn best, which is in pictures. They are picture thinkers who don’t learn by memorizing details and then constructing a whole out of them. They capture information all at once, just like a camera snaps a photo.” Says Linda Silverman, director of the Institute for the Study of Advanced Development.

Strategy 2

Ensure that learning materials have the following elements:

- **Rich and engaging content**
- **Relevance to students’ life experiences**
- **Reflects students’ culture**

Harp and Brewer (1996) laid out the three optimal conditions for gaining meaning in content reading:

- A strong motivation to read the material. Provide rich, relevant, accessible media and child-centered instruction.
- Provision of authentic classroom activities that accompany the reading. Give students real reasons to read and write with personalized content, images and pictures.
- Integrating content skills along with the material to be learned. Teach children how to deal with content reading as they read.

Self-motivation is the magic ingredient for achieving success in whatever you do, including academic success. Part of a school’s responsibility is to encourage and nurture every student’s innate desire to learn. The struggling student, the disengaged or “turned-off” student is easily overlooked and left to sit in the back of the room. These students may find standard classroom materials too difficult or too easy, the pace of learning too slow or too fast. They may be overwhelmed by the complexity of the classroom environment or the concepts being taught.

To recapture and reengage these students in the joy of successful learning, the classroom environment must foster active learning. In such a classroom, students are given an opportunity to take control of their own learning. The content of the learning makes sense to the student and is understood in the context of the student's life.

The Theory of Situated Learning asserts that the acquisition of knowledge is a result of the activity, the context and the culture in which it occurs (Lave & Wenger, 1990). This is in contrast to traditional classroom methods that present knowledge in an abstract form and out of context. A study (Kintsch 2002) looked at the reading comprehension and reading time of three levels of participants, which included those with beginning, intermediate or advanced knowledge of the subject. The results indicated that the group with the least prior knowledge of the subject had the least understanding of the text read and the least ability to retrieve contextual information. To reengage the student who hides out in the back of the room, classroom content has to make sense to him in the context of his life.

Strategy 3

Empower students to take control of their learning through the creation of their own personalized learning materials.

The content of the learning must make sense to the student and be understood in the context of the student's life. This can be achieved not only by careful selection of commercially available products but also by enabling students to create their own authentic reading and writing materials that reflect and build on their personal life experience.

Learning by doing has always been considered one of the most powerful ways to incorporate new learning. With technologies such as the Internet and computer programs, as well as communication devices such as digital and web cameras, video cameras and smart phones, students have a wealth of tools for constructing their own learning materials. For students who have difficulty with the traditional methods of classroom instruction, that rely heavily on auditory delivery of information, these tools can help level the playing field.

The Constructivist Theory, which maintains that learners actively construct knowledge by integrating new information and experiences into what they have previously come to understand (Bruner, 1996), provides a strong confirmation for the value of authentic learning. Both the Constructivist Theory and Authentic Learning Theory assert that an individual's experience is a valuable and viable foundation for acquiring knowledge and skills. The

life experience of students, both within the classroom and beyond the school, expands their legitimate sources of knowledge.



Authentic learning typically focuses on real-life experiences, problems and their solutions. The learning environment is inherently multidisciplinary. With authentic learning students are encouraged to use their personal experience to construct new knowledge. Students, who expand their base knowledge through authentic learning, cultivate “portable” skills that can be applied to other parts of their life, such as judgment, patience, flexibility and the ability to recognize relevant patterns in unfamiliar contexts. (Lombardi, 2007) With authentic learning students learn how to think.

Strategy 4

Students with learning disabilities and special needs are predominantly visual learners and benefit when materials are designed to respond to their preferred learning style.

Students with learning disabilities are predominantly visual learners and right brain thinkers. Visual learners are picture thinkers! Because visual literacy precedes verbal literacy in human development, visual learning is the basic building block in the thought processes and a critical foundation for learning to read and write. Berger (1972) explains how a child looks and recognizes before it can speak. Visual images, such as pictures and photos, are nonverbal representations that precede verbal cues and abstract symbols, such as letters and words (Randhawa & Coffman, 1978).

A study was conducted to determine whether computers with visual cues or teachers were more successful in assisting children with autism to increase their vocabulary (Moore M, Calvert S., 2000). The children were more attentive, more motivated, and learned more vocabulary words working with visual cues on the computer than in the behavioral program managed by a teacher. A comparison of basic reading instruction between computer assisted instruction and traditional book methods for children (ages 3–5) with autism found all children spent more time on task and retained more information when learning in the computer environment. (Williams, Wright, Callaghan, Coughlan, 2002). One study (Singleton and all, 1998)

demonstrates that hearing children and deaf children employ very different learning strategies and do not learn English in the same way. Deaf children primarily rely on visual clues, where as the hearing child depends on a combination of visual and auditory clues. For example, deaf children cannot make use of phonological processing, which depends on auditory input. During the early years of language development in deaf children, visual aids, such as pictures, drawings and photos, are essential in establishing links between words and word categories (Marschark, Marc, 2001).

“Since vision is a deaf person’s primary channel to receive information ... visual aids are a tremendous help to these students.”

– Northcentral Technical College (NTC), 1993

Studies show that children with Down syndrome (DS) are primarily visual learners and experience more difficulties with auditory learning.



When teaching a child with Down syndrome to read, a key method is the use of whole word sight recognition accompanied by illustrations, images and/or pictures. (Buckley, Sue; and others 1986) Moreover, using phonics to decode words can be more difficult for young children with Down syndrome because it requires accurate hearing and

good auditory discrimination of sounds as well as problem-solving skills – all common areas of difficulty in children with Down syndrome.

Students with learning disabilities often struggle with self-esteem and confidence issues. Providing learning materials that fit students’ special needs is essential to ensuring their learning success. And success is a key element in building a strong and positive self-image.

Strategy 5

ELL students learn best when reading and writing content reflect their cultural experience and are heavily supported with visual images.

ELL students, while learning English, are at a disadvantage with verbal instruction that requires auditory decoding. Whereas it takes an average of two years for a child to develop interpersonal skills in another language, research indicates it takes from five to seven years to acquire cognitive – academic language proficiency (Ovando, 1993). In a classroom environment students with limited English proficiency rely heavily on visual clues for the comprehension and acquisition of learning content (Olmeda, 2003).

Enabling ELL students to personalize their reading and writing projects with pictures, photos and images provides a strong learning foundation. In a study

(Carrell, 1987) that included 52 ELL students from two different cultures, the researchers found that the students better remembered and comprehended reading and writing materials when the text was most similar to their cultural experiences and included visual images to further support the written word. Student created journals accompanied by their own photos, images and artwork provide a strong foundation for learning a new language.

Are You a Visual Thinker?

If you answer “Yes” to nine questions, you are a visual learner.

1. Do you think mainly in pictures instead of in words?
2. Are you good at solving puzzles or mazes?
3. Do you like to build with LEGOs and blocks, etc.?
4. Do you often lose track of time?
5. Do you know things without being able to tell how or why?
6. Do you remember how to get to places you have visited only once?
7. Do you remember what you see and forget what you hear?
8. Do you solve problems in unusual ways?
9. Do you have a vivid imagination?
10. Are you talented in music, dance, art or drama?
11. Can you visualize objects from different perspectives?
12. Do others think you are unorganized?
13. Do you love playing on the computer?
14. Do you have trouble spelling words correctly?
15. Do you like taking things apart to see how they work?
16. Do you have at least one visual-spatial parent?

Visual Spatial Resource, A subsidiary of the Institute for the Study of Advanced Development, 1452 Marion Street, Denver CO 80218, developed this questionnaire. (February 2010) <http://www.visualspatial.org/vslqkids.pdf>



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Empowering Student Learning

For over twenty years APTE Inc. has been publishing materials that respond to the many learning styles of students. With APTE software programs students use their own words, photos, videos and images to create authentic and personal learning materials. Because the content is relevant to their lives, students become motivated and invested learners.

The graphic is a promotional poster for APTE's Literacy Suite. At the top left, an orange banner reads "PreK- Grade 5". To the right, a yellow starburst contains the text "Over 25 National Awards". The central text reads "APTE's Literacy Suite" in a large, serif font. Below the text are four small photographs: a boy covering his eyes, a girl smiling, a boy and girl looking at a tablet, and a girl writing. Below the photos, the text says "Supports and motivates new and struggling learners." At the bottom, a red banner features the APTE logo and the tagline "Power to the Learner", with the text "Educators' trusted partner for over 20 years." underneath.

See why school districts across the country choose APTE's Learning Suite to support their curriculum.

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